DOCUMENT RESUME

ED 083 672 EA 005 508

AUTHOR	Dibner, David R.
TITLE	You and Your Architect.
INSTITUTION	American Inst. of Architects, Washington, D.C.
PUB DATE	Aug 73
NOTE	16p.; A related document is ED 025 100
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Architects; Architectural Character; *Building Design; Construction Management; *Construction Programs; *Contracts; Design Needs; Occupational Information; *Professional Services; Responsibility; School Planning; Specifications

ABSTRACT

This booklet was conceived and developed in response to the many questions asked of the AIA about architects and architecture by those contemplating a construction project. Questions answered concern reasons for retaining an architect, selection of an architect, methods of paying an architect, client responsibility, the building design process, contractor selection, and the architect's role during construction. (Author/MLF)

ED 083672

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRO
DUCED EXACTLY AS RECEIVED FROM
THE PERSON OR ORGANIZATION ORIGIN
ATING IT. POINTS OF VIEW OR OPINIONS
STATED DO NOT NECESSARILY REPRE
SENT OFFICIAL NATIONAL INSTITUTE OF
EDUCATION POSITION OR POLICY

You and Your Architect by David R. Dibner

This booklet was conceived and developed in response to the many questions asked of the AIA about architects and architecture by those contemplating a construction project. This need to know more about the process of design and building seems especially critical to those who are building for the first time. They want to learn more about the architect, and their concerns range from the basic question of how to find one to what his responsibilities are during the development of a building project. In addition, potential clients want to know what will be expected of them during this process.

It is therefore to you, the client, that this booklet is directed. We want you to know more about our profession and invite you to share the knowledge and experience we have gained about the art, science, and business of design and construction.

For your goal is ours: the best building for you, architecture of highest quality, and a positive contribution to the community and nation, of which it will be a lasting part.

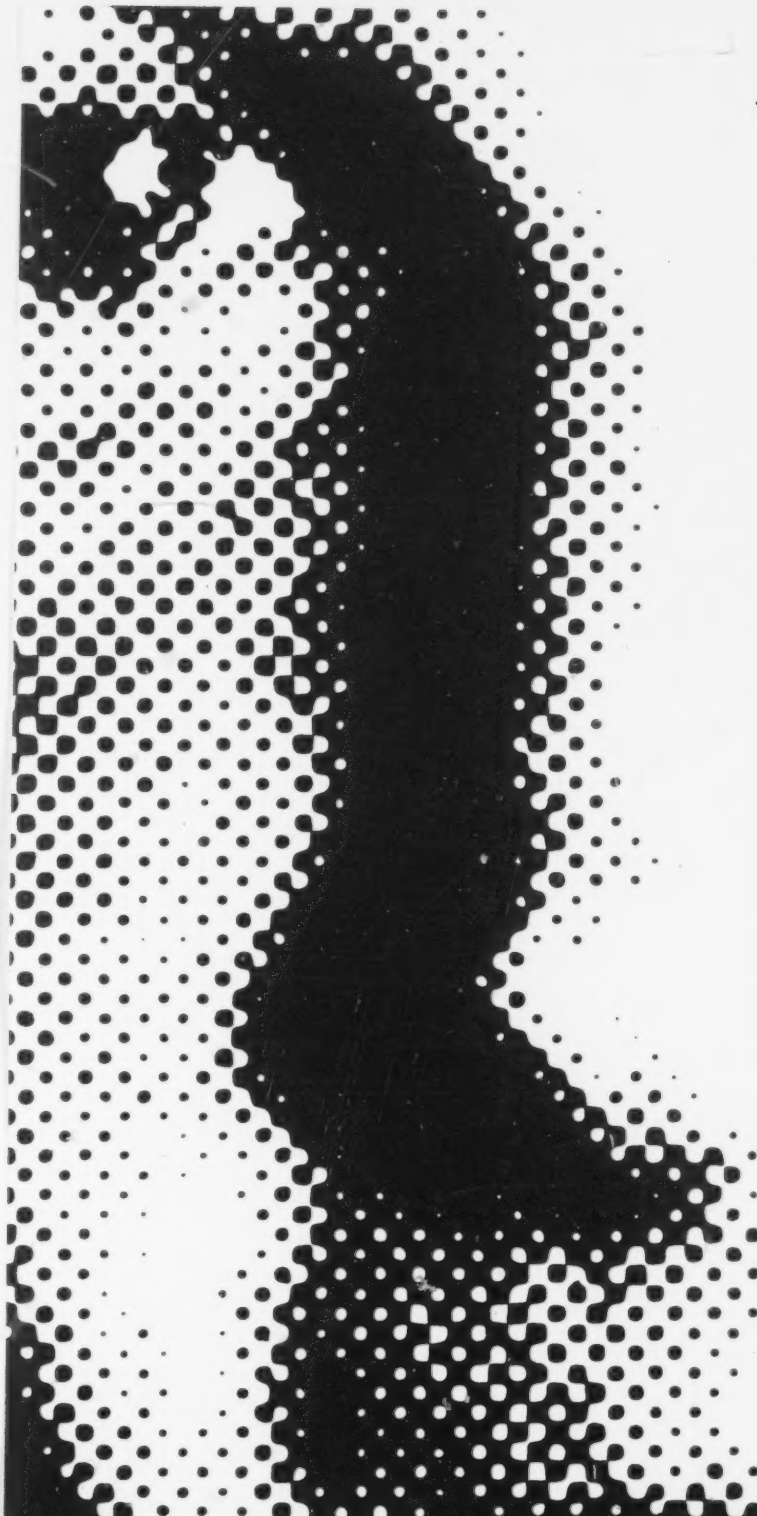
Our profession pledges its continued effort to help attain these goals.

About the author: David R. Dibner, AIA, is a partner in The Grad Partnership of Newark, N.J., a large architectural firm with a broad scope of practice. He has lectured and written extensively on the subject of owner-architect relationships, and he teaches a course on architecture at Seton Hall University. He is also a member of the Documents Board of the AIA.

Some of the information provided here was drawn from the AIA's predecessor booklet "Your Building and Your Architect," written by Donald Canty.

EA 005 508

FILMED FROM BEST AVAILABLE COPY



1. Why do I need an architect? Architecture differs from the other major art forms in that it is created in response to a need. The architecture critic Ada Louise Huxtable once wrote, "A building is as good as its client." It therefore becomes evident that you, the client, are a vital part of the process of design and building. The architect needs *you*. But the initial question remains:

Why do you need the architect?

A basic answer is that if you are contemplating the construction of a building, **the architect is the single professional whose training and experience have equipped him to guide you through the entire building process.** Further, in every state in the Union, the need to retain an architect is not an emotional, but a strictly legal one. One of the ways in which the states protect the life, health, and safety of their citizens is to require that drawings for new buildings or major alterations must be prepared by and bear the seal of a licensed architect.

However, besides the legal requirements, there are many other positive reasons for hiring an architect. He is the specialist who knows how to translate your dreams into reality. Blending the ingredients of your requirements, the restrictions of budget, building codes, and site conditions, along with his creative abilities, he is able to design a building—hopefully one of beauty and distinction.

There are times, of course, when the client may purchase a new building without ever coming in contact with an architect. This happens quite often in residential building, and sometimes in industrial construction, where the purchaser deals directly with a builder or developer who in turn has hired an architect to design his building. In such a case, the client has the advantage of seeing the completed building before he buys; but altering the building to suit his individual needs would be costly and time-consuming, and the result a compromise.

An analogy might be the difference between a ready-to-use and a custom-made product. In the latter, the user deals directly with the designer, and he receives a product which is tailored directly to his needs. This process certainly will take longer than finding the finished product immediately on hand, and it will probably cost more because it responds to individual requirements rather than being mass produced. However, the end result is almost always bound to be more satisfactory since the user has contributed directly to its development.

This booklet was written to describe this direct relationship between client and architect and to point out ways in which it can best develop. For a successful relationship, the first ingredient is the client's understanding of what an architect does, and what is involved in the process of design and construction of a building. This understanding will help to make the entire process an easier and more rewarding experience for the client and all the others who are involved.

A few years ago, The American Institute of Architects (AIA), came up with a simplified explanation of the process, expressed in three parts: DECISION, DESIGN, and DELIVERY. For each of these divisions, the primary responsibility is assigned to a member of the client-architect-contractor "building team." The client makes the *decisions*, approving all aspects of the project. The architect is responsible for the *design*, and the contractor *delivers* the finished building.

First, a word about the word "design" as used by the architect. It extends much further than the popular definition of a handsome exterior appearance. To achieve "good design," in architectural terms, a building must not only look good, but also must function well, be soundly put together, meet the budget requirements, provide the proper environment for its occupants, and also be a fitting addition to its surroundings. (Quite an order! Yet these same criteria were no doubt expected of the architects who designed the Coliseum in ancient Rome.) This does not mean that all projects meet all the criteria. But the goal of all is "good design" in the broadest sense.

The architect's first obligation is always to you, his client. His primary concern is to give you what you want, within the limitations imposed by your budget. But he is also responsible to others, including local building and zoning authorities—and the owners of neighboring property.

He must study the location and topography of your site, first to analyze the impact and possible limitations they may impose on the project, and second, to examine the potential impact of the building on its surroundings. He will also be concerned with the visual impact of your building on its immediate neighborhood, and vice versa. This does not mean that his design must or should mimic what is already built in the area, but that it should blend harmoniously with its surroundings.

And in any building more complex than a single-family house, he must take into account the effect the project will have on its *users* (as distinct from owners)—for instance, the teachers and students in a school, or the staff and patients of a hospital. Apart from its exterior effect and the way it blends in with its setting, the building must function well internally. The spaces within must be properly sized and proportioned and their relationships must allow for smooth and easy circulation.

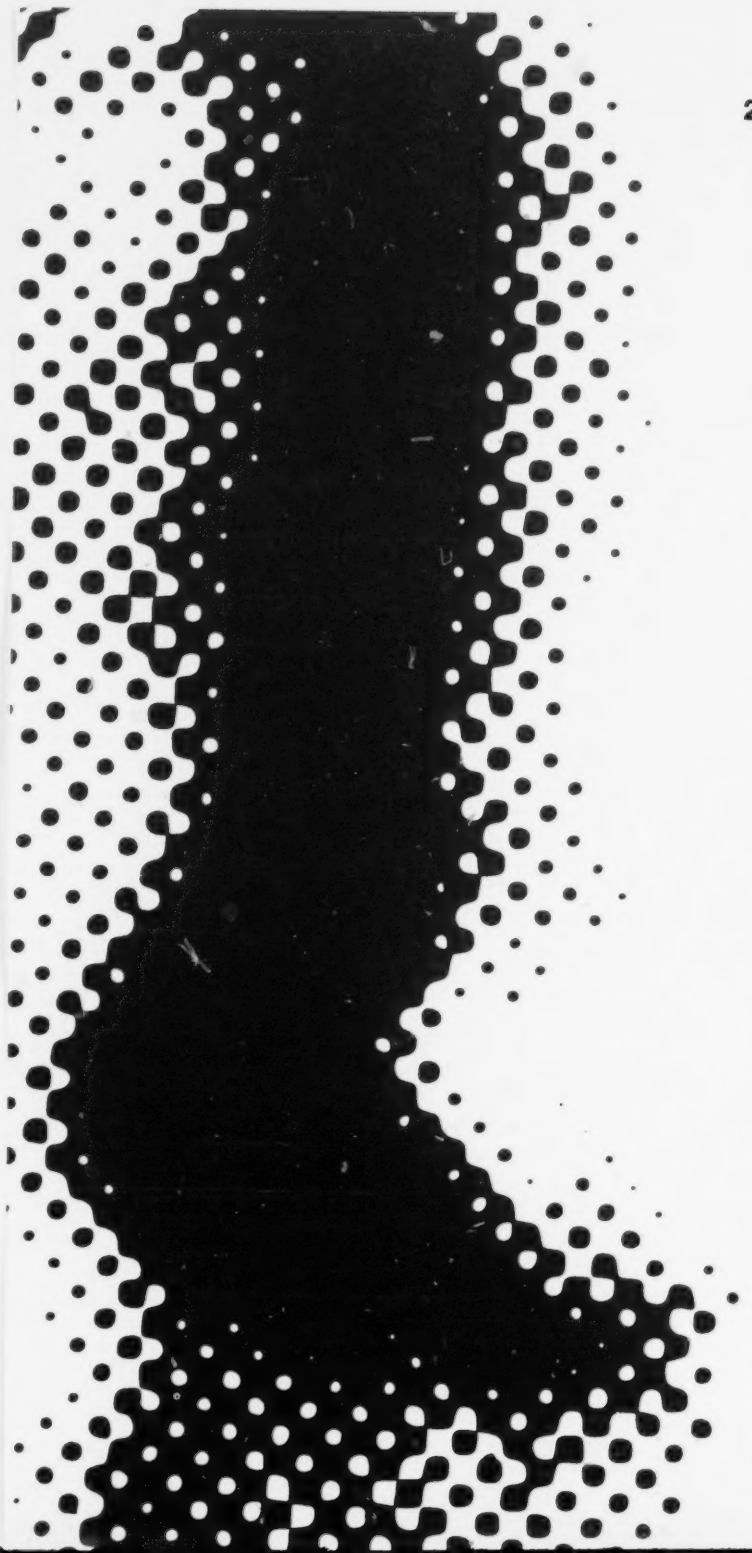
The building must be structurally sound and able to take the stresses imposed by its own weight, the requirements of its occupants, and the forces of nature.

The architect is also responsible for selecting the various systems which will control the internal environment of the building—heating and cooling, lighting, and so on. In these areas—structural, mechanical, and electrical—he depends on the help of related professions, and so he retains engineering and other consultants to provide specialized expertise in these highly technical areas.

The architect also needs to be aware of the kinds of materials and finishes available. Like a painter, the architect has a "pallette" which consists of a nearly infinite variety of materials, finishes, textures, and colors from which he can select. These finishing materials must be chosen not only on the basis of appearance, but also with utility, economy, and ease of maintenance in mind.

Since a building, any building, represents a substantial financial investment, the architect must recognize the limitations imposed by the budget available for the project, and he must be acquainted with the economic factors involved in the selection of the site, the materials, and the building methods. He must be familiar with financing, maintenance cost, and where applicable, the income the building may be expected to yield.

How does the architect become competent in so many diverse areas? First, the five or six years of formal academic training leading to his degree have included courses in all aspects of the design and building process. Second, before being granted a license to practice, he must have a minimum of one to three years of experience under the direct supervision of a registered architect, after which he must pass a rigid examination. Third, the AIA, his professional organization, helps with a constant flow of information about new procedures and techniques as well as the most efficient methods of professional practice. Finally, he must have a working knowledge of the technical disciplines of his consultants in order to coordinate their efforts.



2. **How do I find the right architect?** On at least one thing most people in the construction industry agree: the selection of the architect is probably the most crucial decision you will make in the entire process of building. At the heart of it, architecture is a highly personal matter. As such, it is rarely the product of committees in collective action, but rather the result of individual chemistry between a client and his architect. Because of its importance, the selection process should receive all the time and effort needed to assure the greatest chance for a successful project.

   Unfortunately, many owners take the easiest way out, choosing a relative or the friend of a friend, without making any real search for the right architect for the project. If the building really means something to you, then the investment of this early effort should reward you many times over. It is important, first, to allow sufficient time.

   The selection procedure begins with the compiling of a list of architectural firms. They may be names of individuals, partnerships, or corporations. The sources are many: of course, relatives and friends; acquaintances who have recently built similar projects; the local chapter of the AIA which may have a list of architects interested in doing the particular type of building; gleanings from newspapers, and architectural and "home" magazines; and, if necessary, the Yellow Pages of the telephone directory.

   For a project in a densely populated area, a list generally includes four or five names to begin with. In smaller towns and for highly unusual projects, two or three names might suffice. Write, or better still, call the firms on your list and tell them you want to hire an architect. Describe your project and ask if the firm is interested in doing your work. If it is, ask for some literature describing the firm's qualifications and experience. If the office is not interested, be sure to ask what firms they would recommend for your project. Most architects will be happy to help you. (The AIA has helped in the area of school design by issuing a Standard Form of Questionnaire for the Selection of Architects which requests answers to questions about a firm's size and background pertinent to educational projects. It is used by school boards.)

   Just a word about the diversity of architectural firms. They may range in size from a one-man office to a firm employing hundreds. They also may vary greatly in their

background. As a result of their specific experience, they may tend to specialize in certain fields, such as hospitals, housing, or schools. Their size, too, will have an impact on the type of project they can take on.

For instance, large firms may prefer not to do any residential work except for very large custom homes. On the other hand, a small architectural office might welcome the custom residence and be overwhelmed by a large, complex hospital project. Your search is intended to locate architectural firms of the right size and background for your particular project.

The responses to your request will usually be in the form of brochures, possibly containing photographs and biographical data on key personnel. The brochure will almost certainly contain photos and descriptive data on a number of the firm's projects. To evaluate this material, you will have to look beyond the style of the presentation, to analyze the basic design quality of the firm's work. Do you feel good about their design approach? Their experience? One caution. Don't look for projects of identical type and scope to the one you are planning, but rather judge the material on its merits and note your reactions to the work.

This review should pare down your original list. If there are no names left on your list, then start with a new list and go through the same process. It is helpful to keep the "final" list balanced by including a variety of firms, large and small, located near and far. This allows you a greater basis for comparison in the next step in the selection process: the interview.

This meeting can take place either in the architect's office (helpful because it gives you a chance to see where and how he and his staff work) or on your own home grounds; whatever feels best. Allow at least one hour for each interview. During the interview, each firm will usually give a graphic presentation of current and completed projects and will describe its experience and expertise to cope with your particular project. More important than what the architects have done for others is what they can do for you.

The interview is your opportunity to ask questions. What is the architects' specific experience in your type of project? How busy are they? Do they have the capacity to take on your work? Who will handle the work?

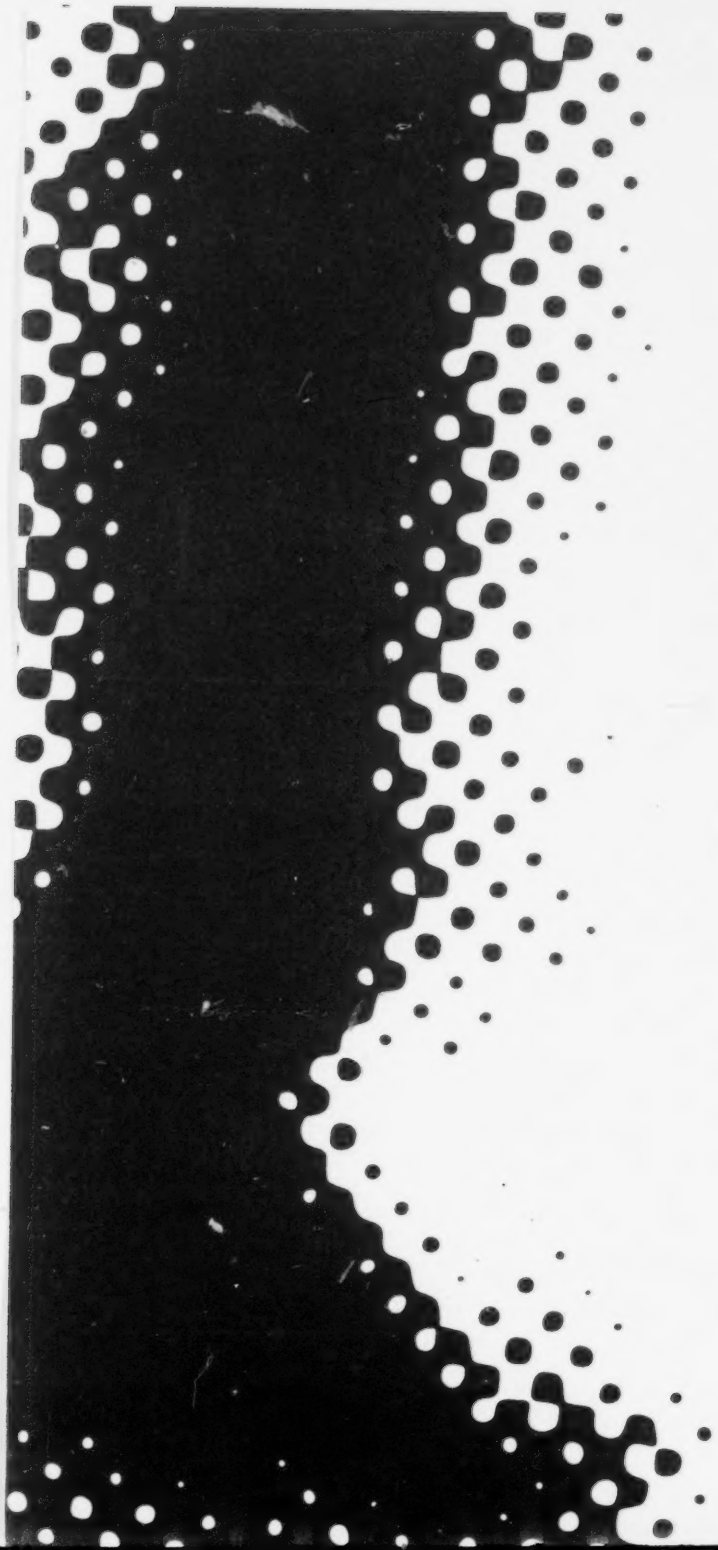
This is especially important in interviewing large firms. Most often the person making the presentation will not be the architect in charge of your project, and while the capabilities of the entire firm are available to your project, the particular individual who will work with you is the key to its success. How well do you feel you can get along with him? Remember, the ease of exchange of information between you and the project architect will be essential to the success of the project.

After you have interviewed all the firms on the list, have the architects still under consideration take you to at least one completed project. While you're there, inquire about the original program for the project and how he went about solving the problems. How well did he feel he did? Take the opportunity to talk to the owner, separately. Here is your opportunity to measure performance through actual experience.

With all the material gathered, the moment of decision arrives. The final criterion must be the "chemistry." With what people do you feel you can best work? If there is a tie between a local firm and one that is remote, it is often best to take the former because of familiarity with local conditions. If the question is between small and large firms, each has its merits. Large firms usually have the greater experience, wider range of services, and larger pool of manpower. They most often are in the best position to handle the larger, more complex projects. The smaller firm may have the younger, fresher approach and will make up for their lack of experience with eagerness and effort. No matter the size of the firm, all are licensed architects, trained to respond to your needs.

For major projects of great scope and complexity, a method of selection that is often relied on is the system of design competitions sponsored by the AIA and described in its Document J331. In this method, the architect is selected after the client evaluates the submission of designs from many architects. This method is the most expensive and time consuming, and so its use is generally limited to very large civic or commercial projects.

No matter the method of selection, once the architect is chosen, the next step is to confirm the relationship in writing. No handshake is firm enough to reach all the necessary understandings about the different roles and obligations each of you will play. Nothing substitutes for a signed agreement. The following chapters will describe how to develop this written understanding.



3. **How do I pay the architect?** The traditional way to pay the architect for his services is by an agreed-upon percentage of the project construction cost. The actual percentage will vary with the type, size, and complexity of the project. For example, since a research laboratory costing $1 million would impose many more requirements, and thus be much more difficult to design, than a warehouse with the same construction cost, the percentage for the laboratory probably would be higher. Similarly, the percentage probably would be lower for a $15-million laboratory than one costing $1 million, because of the repetitive nature of some aspects of the design. In order to provide useful guidelines, some local chapters of the AIA have drawn up guidelines for negotiating compensation on a percentage basis. These are available on request. They are not standard rates in any way, but they may help you understand the usual range of compensation for projects of a particular type and size.

   Despite its wide acceptance, the percentage approach has recently begun to lose favor. It has created some problems for both owners and architects, but for different reasons. Some clients state their suspicion of this method with expressions like: "The higher the project cost, the higher the architect's fee, so why shouldn't he spend your money?" The truth is that architects are usually working within the confines of a budget limitation and do not, as the statement would imply, have free rein to design beyond the project budget. Further, it is possible to document **case after case in which the owner has been saved a good deal of money through the ingenuity of the architect's design.** One such case is the Cities Service Oil Company's headquarters in Tulsa in which an ingenious use of the outer walls as a truss reduced the cost of the building by $1 million.

   From the architect's point of view, the percentage method sometimes is a "gamble" and therefore not as desirable as other forms of compensation. First, in cases where a project's scope is poorly defined at the start, he may have to exert a larger-than-usual effort at the beginning stages of a project. If his compensation is based upon a percentage of the final cost, it has no relationship to this unusual effort. Second, his compensation stands the chance of being drastically reduced if the bidding (which determines the construction cost and therefore his compensation) is erratic. For example, a contractor who needs the work badly might submit a very low bid which

might cover only his cost (no profit) just to keep busy. There are three other ways in which an architect may be compensated for his work. The first method is based on a Multiple of Direct Personnel Expense. In this case, the architect adds up the salaries of his personnel for the actual time spent on the project plus the cost of their mandatory and customary benefits such as statutory benefits, insurance, sick leave, holidays and vacations, pensions, and similar benefits. The total is then multiplied by a mutually agreed-upon factor to cover the architect's overhead and profit. This method can be especially useful if the scope of the project or the extent of the architect's services are hard to predict. If they choose, once the full scope of the project is established, the client and architect may set an upset limit on the architect's compensation.

A combination of the two methods of compensation is quite often used. The multiple of direct personnel expense is used in the early stages to define the work, after which the percentage method is employed, as compensation for the remainder of the architect's services.

Another method of payment is titled Professional Fee Plus Expense wherein the architect is paid a separate fee for his personal services, and a multiple of direct personnel expense, for the work of his employees. The fee may be a lump sum, or a percentage of the construction cost. This method is used by large corporations or institutions who are perpetually in a building program and there is a continuing relationship between client and architect on many projects. Its disadvantage to the client is that it does not set, in advance, a clearcut fee amount.

The last method is the lump sum compensation, in which a fixed amount of compensation is established at the beginning of the project. This type of compensation is best applied when the exact scope of the work is known at the start of the project and when no changes to the scope or size of the project are made during the development of the project, thereby changing the work which the architect must accomplish.

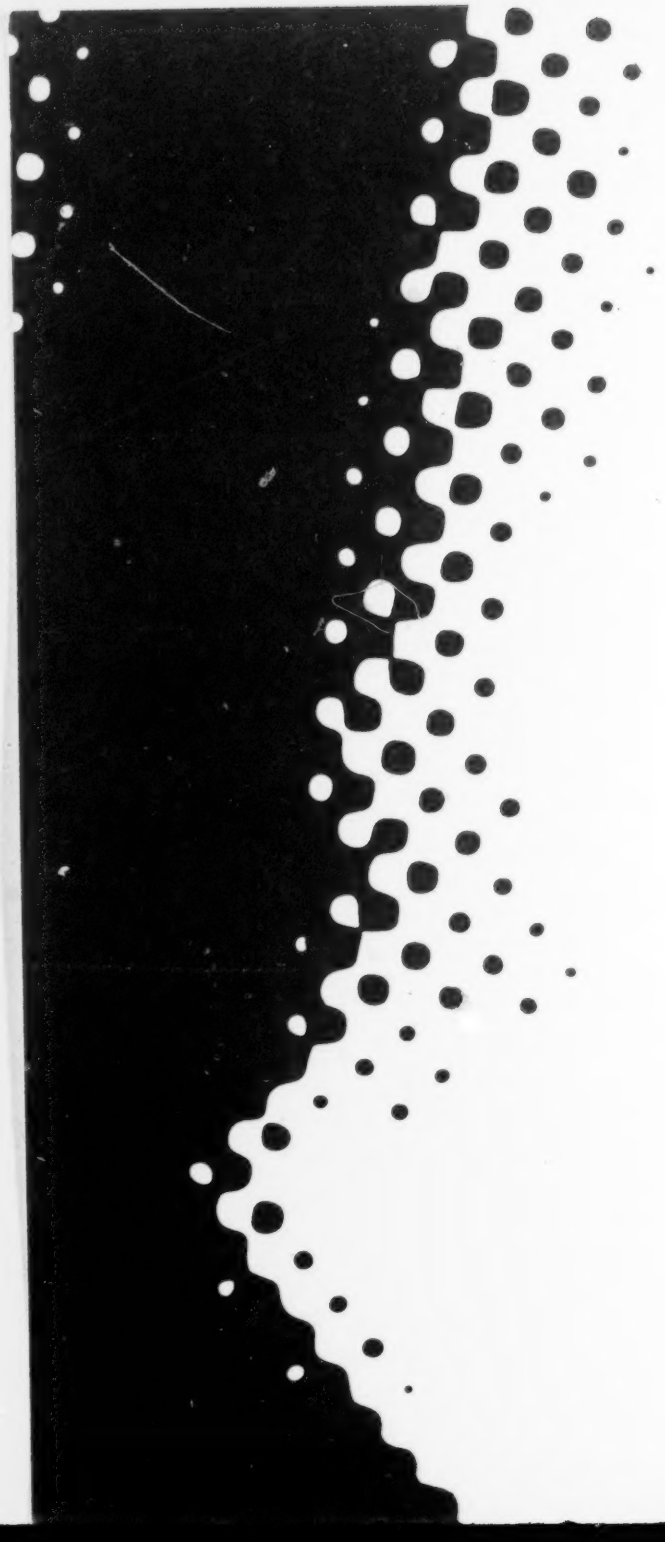
Regarding the AIA standard agreement forms, these documents have been widely accepted for use all over the country, and were drawn with the interests of both the client and architect in mind. Besides covering the payments to the architect, these documents spell out the responsibilities of both parties as well as a detailed description of the services to be rendered by the architect throughout the project, including the construction period. As in any other legal undertaking, it is wise to have your attorney review the document and include any suggested changes before you sign it.

Other helpful things about the use of AIA agreement forms: They are revised periodically to keep them up to date with the latest practices, and they are in a form which is easily modified to suit individual conditions. They cover the basic ground rules of practice in the construction industry and are carefully tailored for use with other standard AIA forms, such as the agreement between contractor and owner in the construction contract which comes later.

Payments to the architect are usually made monthly in proportion to the services rendered, after an initial payment made upon the execution of the agreement. A certain percentage of the architect's compensation becomes due at each stage of the development, with 100 per cent due at the completion of the construction. When the percentage method is chosen, an estimate of the construction cost is used as the basis of billing until the actual construction cost is known.

In addition to the architect's basic compensation, the client is expected to reimburse the architect for any expenses of transportation and living while traveling in connection with the project as well as for miscellaneous items such as long-distance calls, reproduction costs, models, and authorized overtime.

When viewing the total picture, the architect's compensation is but a small part of the entire project cost and yet the architect's impact on the success of the project is enormous. Choosing him solely on the basis of compensation, therefore, is inconsistent with good business sense. In fact, both client and architect may suffer. As a building contractor, with many years of experience in all types of projects, recently stated: "Clients often don't realize that 'they get what they pay for!' If they choose their architect exclusively on fee, its just the beginning of their problems—and mine too!"



4. What is expected of me? When British author and critic Nikolaus Pevsner spoke at an AIA national convention, he was quoted as saying that the great ages of architecture have depended as much on knowledgeable clients as on the flowering of architectural genius. "Today," Dr. Pevsner added, "clients tend to be too timid."

This statement probably shocked as many architects as it did clients. In times past, there was a tendency on the part of some architects to treat their clients rather cavalierly, saying in effect, "Leave it all to me, I know what's best for you." Since people are unique individuals and their building requirements differ, this was no sure road to success. Many clients found, to their dismay, that what was considered best for them, was in fact responding to the architect's own idea of the way people ought to function.

There was the case of the architect who kept including in his designs of a house, an informal dining area in the kitchen. The client had stated from the earliest interview that it was the family's practice to eat only in the formal dining room. Every time she saw the kitchen eating space on the sketches, she had the same reaction: "Take it out. We always eat in the dining room."

So it was finally erased from the plans but deep down, the architect felt that the client really was making the wrong decision. When he visited the house many years after, he found that this eating arrangement really suited this family's life style. As he later stated, "I learned that my trying to, in effect, tell them how to live was pure nonsense. It was quite a learning experience and helped me greatly in my practice."

On the other hand, the client should weigh the architect's advice carefully and avoid pushing the architect in a direction that might be detrimental to his own best interests. In designing a project the architect is trying to balance four distinct forces: esthetics (what the building should look and feel like); technology (how it can be built and its interior environment controlled); economics (the limitations of the budget), and function (what the building is to do). You, the client, must work with the architect in helping to keep these forces in proper relationship, so that the result will be a well-balanced design. One excellent graphic designer, who was "on his second architect" in the design of his new building, finally came to the realization that his first architect "had been right all along in resisting my way-out design

ideas. I really couldn't afford them." One year and a lot of money were wasted on this learning experience.

The most productive collaboration is the one of balance, the client and architect working together as a team. On the one hand, you cannot let the architect control to the point where the building becomes no longer yours. On the other, you should not hamstring the architect's talent to the point where you are no longer getting your money's worth in terms of design quality.

In addition to your help in maintaining "balance," there are several other contributions you, as owner, will be expected to make in the development of your project. First and most obvious, you bring the money to build the building. In the matter of money, you should be clear and firm as to the amount you have to spend. More than one client has short-changed himself by cannily setting aside a secret contingency fund, and thus imposing a needless limitation on both the architect and the building. Others have wasted their own time and the architect's by talking big at the outset, then spending small when the chips are down.

Budget discussions should include more factors than just the original construction cost. Most design decisions require that a three-way balance be struck among initial cost, the cost of maintenance and repair, and the cost of money. A higher-priced wall finish may turn out to be a bargain if it will require less maintenance over the life of the building than a lower-priced alternative. The savings in maintenance, on the other hand, may be more than offset by the cost to the client of keeping extra money tied up in the original higher material costs. The architect can help strike the balance, but only if he knows the client's complete financial picture.

In addition to the money, you, the client, can contribute the essence of the project — your requirements. There was a professor of architecture who insisted that in order to design a building for a firm or a house for a family, the architect should spend at least one month "living" with the firm or family. There is no other way, he felt, to fully understand their particular functional requirements so as to respond with the proper design. This method is impractical in our fast-paced world, but it indicates the depth of understanding which should be developed.

To maximize the benefits of the short time which current practice allows for the transfer of information, it is important to organize your thinking in advance. The object is to develop a "program" listing all your space requirements, so that the architect may have a starting point from which to design the building. Besides communicating your space needs, it is important to convey to the architect your life style, your likes and dislikes, and your budget and time requirements in the most concise way possible. Clip from magazines ideas which interest you. Keep notes about things you have seen and liked in other buildings. For a new home, record your family's activities for an entire day. For an existing business, assign someone to study and record the intercommunication between the various departments. This not only helps the architect to understand your spatial requirements and adjacencies, but more importantly, it focuses attention on the way you and those around you interact with the spaces they use, and in turn, sharpens your understanding of what you want in the form of your environment. When an entirely new building is involved — perhaps a library or a school — and there is no prior experience to measure, the administrator may need professional help to prepare his program.

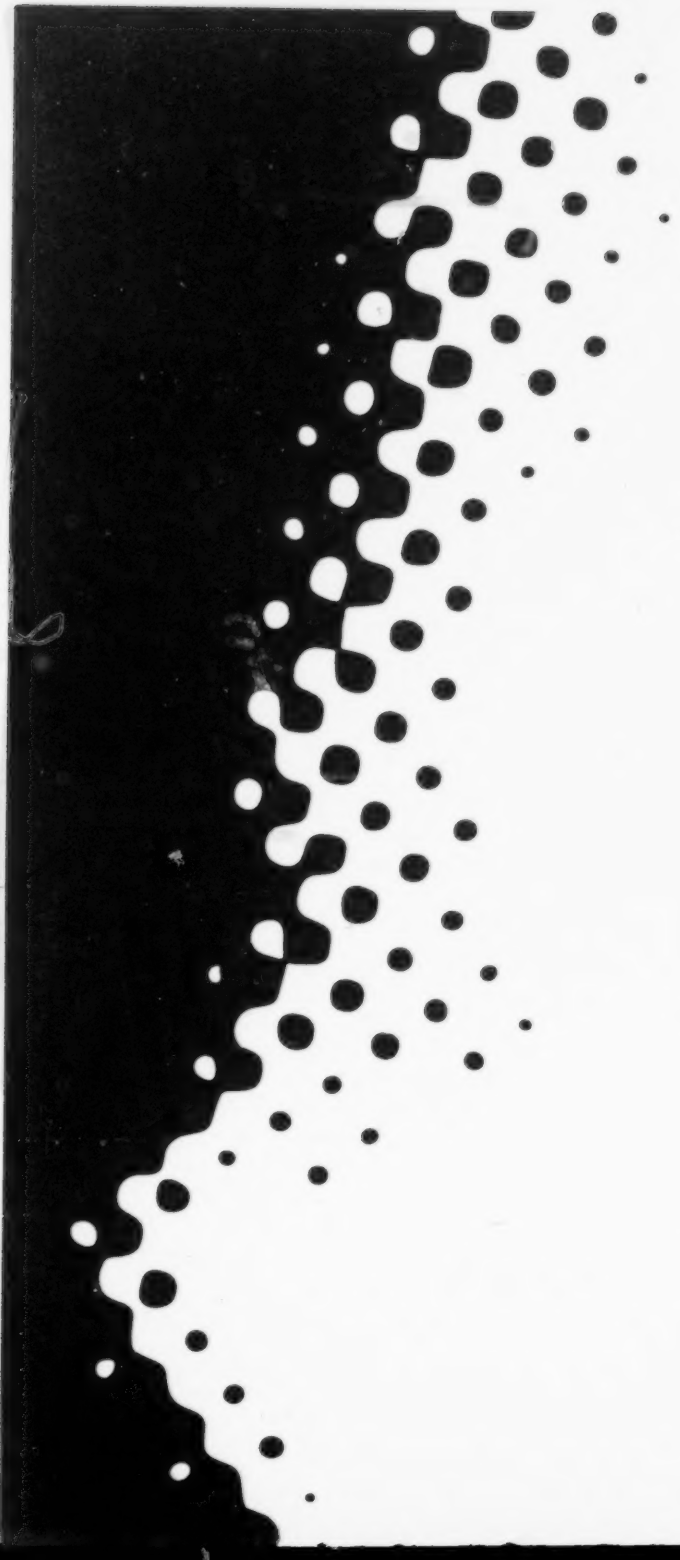
The director of a new community center, showing a guest through her recently completed building, remarked about her architect, "It was incredible: the first few weeks all we did was talk about philosophy while the architect took us around to see different centers. He wanted our reactions. Now I see why he did it. He was learning about *us*."

Most important in this process is for you to stay loose.

The architect is interested in your particular requirements but not your fixed solution or your exact design. He wants to have a chance to contribute his own ideas in an atmosphere of acceptance. He can translate your requirements to reality, so it's good sense to allow him to make his maximum contribution.

In addition to your money and your program of requirements, as owner of the property you will also be expected to furnish a certified land survey and information about soil conditions on your property. Your architect can assist you in obtaining this information.

The last, but one of the most essential requirements, will be the generous contribution of your time. Be prepared to spend a lot of it in discussions, reviews, site visits, and other activities. It is the best investment you can make to assure the success of your project.



5. **How does a building get designed?** The design of a building starts with the program of the client's space requirements. Normally, since it reflects your needs, it is first prepared by you and then reviewed with the architect, who will suggest changes based upon his own knowledge and experience. In the case of a large project, where the client does not have the expertise to prepare such a space allocation program, the architect will prepare the statement after research and interviews with the ultimate users of the space in order to determine their functional requirements. In such instances, the architect's compensation may be increased, since the preparation of the program is not usually included in his basic services unless specifically stipulated in the agreement.

   After the program has been prepared and thoroughly discussed, the project enters the schematic design phase. The architect starts with rough diagrams of the interrelationships of the various spaces in the building. He then prepares sketch plans showing the general arrangement of areas with circulation patterns interconnecting them. During this period, the architect is using rolls of sketch paper and is revising and refining sketches until he arrives at one or more solutions which he feels meet the needs of your project.

   These schematic drawings usually include a site plan showing the general relationship of the new building to the site, small scale drawings of the principal floor plans, explanatory sketches, and a statement of the probable construction cost.

   As one client said, recalling her first exposure to schematics, **"It's now no more talk. There it is in hard black lines!"** These first drawings may appear to the client quite different from what he understood from the decisions made earlier. It is important to remember that this is just a first step, sometimes far from the final drawings. At this stage, and throughout the design process, the architect has an obligation: He must present his work in such a manner that you, the client, will have a clear understanding of what is intended. A common concern of new clients is, "What happens if I don't like the design? Will the architect change it?" The answer is "yes." At this stage, the sketches will be revised based on discussions with you, the client, until the schematics receive your approval.

   The client also has an obligation: to be the interrogator, to ask the architect the reasons behind every aspect of

the design which he does not understand. The worst thing that a client can do at this time is to be uncommunicative or unavailable. This is no time to be bashful or to hurry things.

Just a word about the architect's statement of probable construction cost. Since at this point in its development, little detail has been established about the project, the construction cost estimate necessarily must be general in nature. Usually, it is based upon the area of the building multiplied by a cost per square foot. To be meaningful, this figure should include a large percentage for contingency to cover the probable changes and rises in the cost as the project develops further. This cost statement along with the drawings must be approved by the client before the project may proceed into the next stage.

In the design development phase, the purpose is "to fix and describe the size and character of the entire project." Drawings are now prepared in more detail to illustrate all aspects of the proposed design. The floor plans indicate all rooms in the correct size and shape. Sections through the building are drawn, as well as elevations showing the exterior treatment. The site plan is refined further with grading and general landscaping. Outline specifications are prepared, listing all the major materials and room finishes as well as a general description of the mechanical and electrical systems. A more nearly accurate statement of probable construction cost is developed as part of this phase.

At this stage, the entire design must be carefully reviewed by the client and architect to determine how closely these design development documents meet the original program and budget criteria. In your mind, "walk" through the building. Does the circulation work well? Does each space serve the purpose intended? How does the building "feel?" Are you happy with its appearance? Do you fully understand the reasons for the selection of the structural, mechanical, and electrical systems? "Approach" the building from a distance. Does it sit well on the site? Do you agree with the floor, wall, and ceiling finishes that were selected? the door types? the windows? the built-in furniture? and so forth.

This is the time of the most intensive communication and cooperation between client and architect. No questions must remain unanswered now, because after this stage, the process becomes almost automatic, converting the ideas developed in this stage into contract drawings and then into the actual building. As a result, any major change that is made after this time will probably cost money and time. A full understanding is your best weapon against later change.

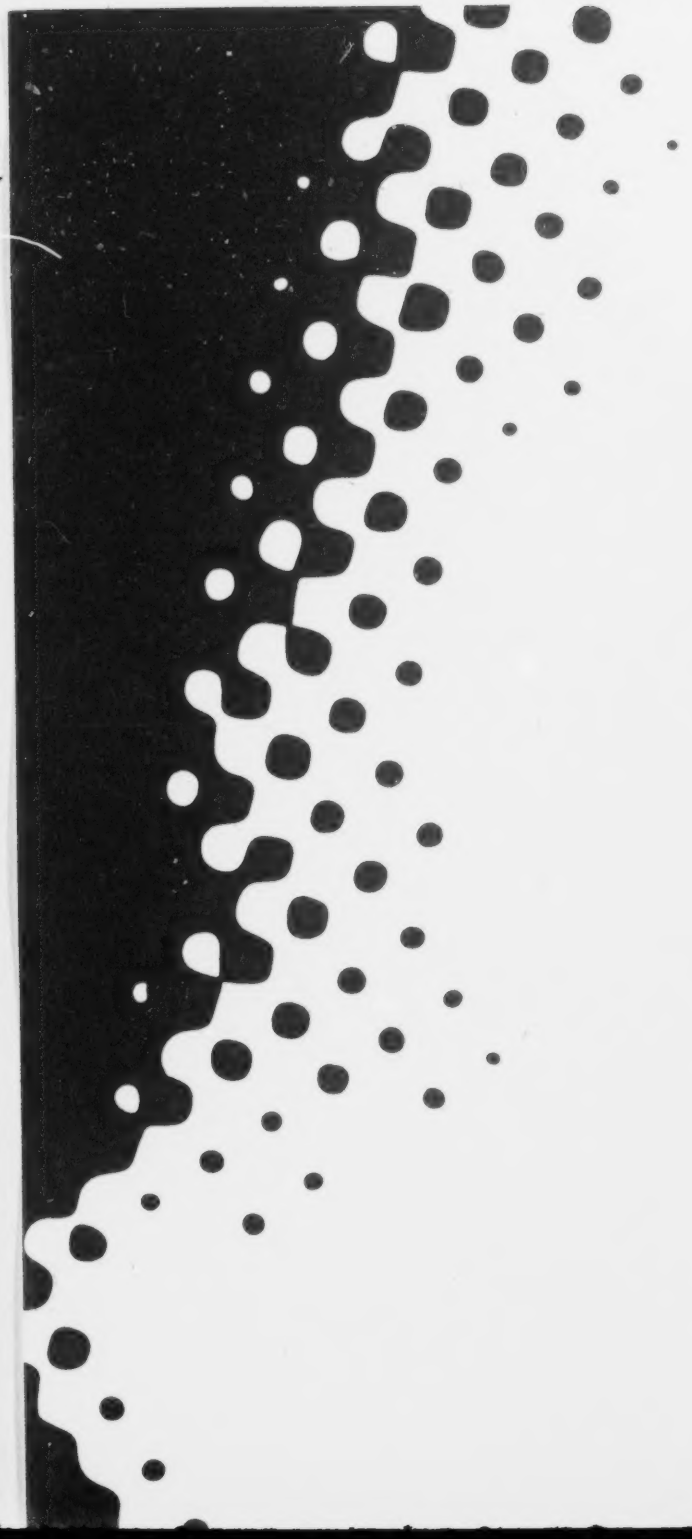
The design development phase has a profound effect on the cost of the project. Every element of the building should be reviewed with your architect, exploring all possibilities, to assure that you are getting the most out of your construction dollar. The time and effort expended by both the client and the architect in this stage will almost always be healthily rewarded in reducing the eventual building cost. If nothing else, it avoids later surprises.

By the time these design development documents are completed and approved, the client has an imposing array of talent at work on his project. There is the architect as well as his usual consultants: structural, mechanical, and electrical engineers. These are normally paid out of the architect's compensation. Other special consultants, such as traffic or acoustical consultants, may be necessary. These special consultants are usually paid for in addition to the architect's compensation.

The next step is the construction documents phase. Here the architect and his consultants prepare detailed drawings and specifications upon which the contractors' bids will be based and which will be used for actual construction. This period of the project's development is usually a time of less client involvement, since it includes the technical elaboration of the ideas developed during the earlier stages. However, periodic communications and contact to review the progress and answer any questions are in order. Furthermore, this is the time for the client to think about the furniture and furnishings which will go into his building.

It is important to note that if the client decides not to build at any point in the development process, he may stop the project and pay the architect for work performed to that date plus appropriate termination expenses. No further strings attached.

At the completion of the Contract Documents stage, the project is ready for its final step. The process so far has converted dreams and ideas into a set of two dimensional products: the drawings and specifications. Enter the last member of the team — the contractor.



6. How do I select the contractor? The drawings and specifications are just so much paper unless they can be turned into a building. The next step therefore, is to choose a contractor to build your project.

Among the several methods of selecting a contractor, the most common is through competitive bidding. The bidding documents, prepared by the architect with the assistance of the owner's attorney, consist of the Drawings and Specifications along with the Invitation to Bid, Instructions to Bidders, and the Bid Form. These are sent to several contractors, who, within a given period of time, reply with sealed bids which include their price for building your project. The lowest responsible bidder is usually then selected for the work. In this method, an important decision must be made to determine which firms should be allowed to submit bids.

When public monies are involved, this question is resolved by laws which require that public notice be issued, inviting all qualified builders to submit their bids. The one turning in the lowest figure gets the job. This system of open competitive bidding is a traditional part of the romance of construction. **It is free enterprise in its freest and most frantic form.** While it virtually assures the client he will get the lowest initial price tag for his building, it can cause many problems for contractor, owner, and architect. For most builders, wide-open bidding can be a perilous gamble. In this situation, the builder is often in competition with firms who do not do the same quality of work as he does, and yet he knows that only the bid price and not his experience or ability will count. Since estimating takes time and costs money, there are far more losers than winners. This may help to explain why Dun & Bradstreet reports a ratio of net profit (on sales) of only 1.18 per cent among building contractors.

An unrealistically low bid should be looked at skeptically, since the builder, possibly in danger of losing his shirt, will continuously look for costly extras in even the most tightly drawn contract documents. This can make the construction period for architect and owner a nightmare of claims and counterclaims.

One method to offset the negative qualities of open competitive bidding is to screen the contractors in advance and establish a list of acceptable bidders. The architect can be very helpful in supplying names of firms which he has found to be capable and reliable. Recommendations

from other owners, based on their experience, can add to the list. Once the list has been established, there are two alternatives. The first is to send bidding documents to each of the contractors. When the bids are returned, the owner can rest more easily in selecting the lowest bidder, since all bidders have been prequalified as capable and responsible. The other alternative, once the select list of contractors is chosen, is to interview the various contractors and to select the one who best fills the requirements for the project. Once the selection is made, the owner with the assistance of the architect will negotiate the terms of the construction contract. The negotiated contract may be either on a lump-sum basis or, more usually, on the cost of work plus a fee.

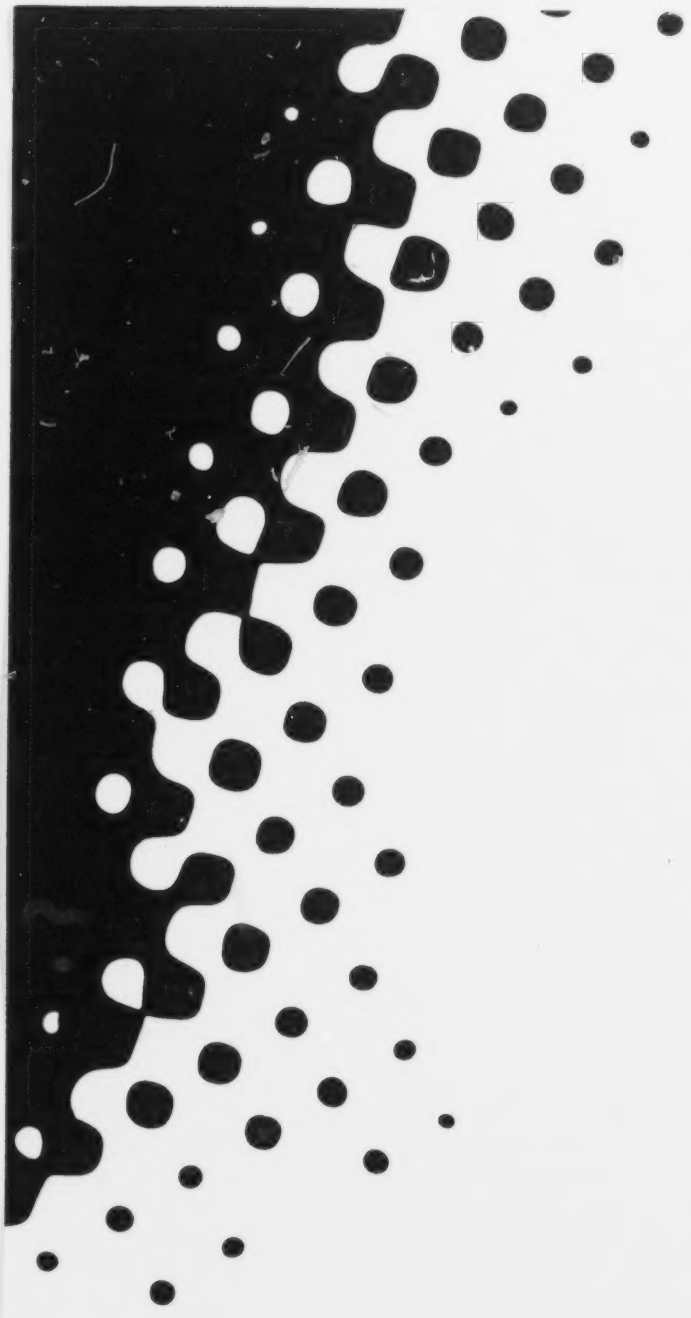
The obvious advantage of the negotiated contract is that it allows for the direct selection of the contractor. You get the one you want. It enables work to get started, if necessary, before adequate and complete drawings are available. Similarly, it is used when one contractor possesses a specific knowledge, applicable to the project, which is not held by other contractors. Further, it allows the builder to become a valuable collaborator throughout the project. Obviously, he must be a man well known and thoroughly trusted by both client and architect. If no such firm is available, competitive bidding is the best answer. The primary disadvantage of the negotiated contract method is that there is no competitive incentive for the contractor to limit the cost of the work, since he is not competing with others on the basis of price.

A refinement of the cost-plus-fee negotiated contract is one in which several selected contractors may bid competitively on the fee to be charged. They also may be required to establish a "guaranteed maximum" cost for the project. In this case, the contractor agrees that if the costs exceed the guaranteed maximum, he will pay the excess. If the final cost of the construction is below the limit, savings are usually split between the owner and the contractor in accordance with predetermined arrangement.

While we have referred to the contractor in the singular, in actual fact, there are two basic ways to undertake construction: (1) to hire a single general contractor, who will subcontract whatever work his own force does not do, or (2) to engage separate contractors for each major segment of construction, e.g. general construction, plumbing, electrical, etc. While some see the advantage of the multiple contract system in the saving of the general contractor's profit, this system has the disadvantage of not having a single point of responsibility for the entire project. This is especially serious when things go wrong. For instance, a crack in a brick wall may be the mason's fault, or from a faulty foundation, or the result of a dozen other trades who installed work in the surrounding area. Where a single general contractor is involved, the solution is clear, because no matter which subcontractor is at fault, the general contractor has the total responsibility for the project. But who will take the responsibility for the repairs where there is controversy under the multiple contracts system? The architect may become the referee.

Once the contractor has been selected, the next step is to execute an agreement. In this matter, the architect assists the owner and his attorney in its preparation, especially regarding technical matters relating to the project. The AIA has published Standard Forms of Agreement between Owner and Contractor, (Documents A101 and A111), which cover the usual types of arrangements and are the result of collaborative efforts within the construction industry. These forms are designed to be used with the Instructions to Bidders and General Conditions of the Contract for Construction, (Documents A701 and A201), which have been approved and endorsed by the Associated General Contractors of America. These or similar forms are important, since they define the requirements and responsibilities of all the parties. In addition, there is a shorter form of agreement for smaller projects (Document A107). One other contributor in the preparation of these documents is the owner's insurance adviser, since the insurance aspects of the agreement are essential to protect the owner during the building process.

With the signing of the agreement with the contractor, the final chapter in the movement from dream to reality — the construction phase — is about to begin. It often occupies the longest segment of time, and its outlook for happiness will depend in large measure on the client's earlier decisions and the architect's earlier labors, including the realism of the design and the precision with which the design has been reduced to drawings and specifications. The construction process will provide the true test, the tangible confirmation of the decisions and judgments made during the design process.



7. **What does the architect do during construction?** With the contractor now a member of the team, there is a shifting in relationships among the client, architect, and contractor. Everyone seems to be perfectly clear about the role of the contractor during this period — he builds. The client, as we learned previously, pays the money, so his role is relatively understandable. But what about the architect? What does he do while the building goes up?

The fact is that during the time of construction the architect assumes several different roles which have been established by tradition in the construction industry and have remained relatively unchanged for ages. His primary role is to act as the agent of the owner, within the limits defined in the agreement between them. For instance, he can tell the contractor when defective work must be replaced, but he cannot authorize extra payment to the contractor without the owner's signature. The architect visits the site periodically to observe the progress and the quality of the contractor's work.

He acts as the owner's eyes and ears. He determines if work is proceeding in accordance with the contract documents, and endeavors to guard the owner against defect and deficiences in the work of the contractor. On larger projects, at the owner's request, the architect may furnish a project representative to be on the site full time, paid for by the owner by additional compensation to the architect. His duties and responsibilities are described in AIA Document B352.

But the architect does not "supervise" the work. This important distinction must be emphasized. The contractor has the duty to provide the proper management of the construction process. He is also responsible for the correct installation of the work in accordance with the drawings and specifications, and for completing the work on time, within the contract price, and in a safe manner. No action by the client or the architect should ever interfere with this basic role of the contractor.

In addition to his site visits, the architect has many other activities to perform. To begin with, he is the prime interpreter of the drawing and specifications, establishing standards which the work must meet. He is the judge of whether these documents and standards are being followed. He reviews shop drawings of building components, approves samples of materials and equipment, and authorizes changes approved by the owner.

One problem that inevitably arises during the construction stage is the matter of "changes." One dictionary illustrates the definition of "change" with the phrase: "She changed her hat." All parties involved in the construction process wish it were that easy! For changes in construction usually involve changes in time and money.

Where do changes come from? From everywhere and everyone. For example, some changes come from the client. In watching the building go up, you suddenly realize that a room is too small and you want it larger. Or it might stem from the architect whose drawings may have omitted an item, or from the contractor, suggesting the substitution of a new material or method of construction in place of that which is included in the contract documents. To provide for these inevitabilities, the client should have a contingency fund available in addition to the monies required for the contract sum. When such change or "extra" (or "credit" in some instances) occurs, the contractor submits a price differential which the architect reviews, and when he is satisfied, he will recommend to the owner that the change be accepted. If the owner agrees, a "Change Order" is issued, signed by all three parties.

Another important aspect in the construction phase is "workmanship." While the drawings define what is to be done and the specifications describe the materials, the quality of the workmanship depends upon the ability of the particular artisan who actually does the work. The architect is the judge of the quality of the workmanship on the job. It is within his power to accept or reject work which does not conform to the standards required by the contract documents. In a number of instances, where work is installed and can't be adequately corrected, the contractor may be directed to "rip it out." More often a solution may be worked out between architect and contractor (with the owner's approval).

Another major aspect of the architect's duties during the construction period concerns the progress payments to the contractor. At the beginning of the construction, the contractor submits for the architect's approval, a "Schedule of Values" which lists the costs for the various items of the work, e.g. electrical, masonry, carpentry, etc. Each month the contractor sends in a request for payment in which he lists the percentages of each item of work which have been completed in the prior month and the resultant dollar amount. The architect, from his observations of the work, checks this requisition and certifies a payment. In the certificate form there is a place to subtract a retainage amount, assuring the owner that he will have enough money to complete the work should the contractor default.

This is in addition to the performance bond which the contractor often provides to assure the completion of the work. The owner then makes payment to the contractor based upon the architect's certificate of payment.

When a dispute arises between the owner and the contractor, the architect puts on another hat. While he has been the owner's agent throughout the construction period, now he becomes an impartial arbiter in adjudicating the controversy. His judgment is expected to be without favor or prejudice and consistent with the intent of the contract documents. This process enables many minor questions and conflicts to be resolved expeditiously without the need for recourse to a formal legal or arbitration process, provided both parties are satisfied with the architect's decision.

To preserve order and prevent chaos, all dealings between owner and contractor should be made through the architect. One architect reported a phone call from his client. With a proud but slightly emotional voice she announced, "I just made the plumbers stop their work." "Oh no! What happened?," asked the architect. "They were installing rusty old pipe and they wouldn't stop. And the specifications say all materials must be new." The architect then patiently described that new cast iron sewer pipe always looks old and rusty. By that time the men had walked off the job, and it took more than a bit of persuasion by the architect to get them to return.

When the project is almost completed, the architect makes one last detailed inspection. If he finds deficiencies, they must be corrected; if not, he recommends that the contractor be paid in full and that the building be accepted. Before the final payment, the contractor must submit a release of liens or claims from his subcontractors, suppliers, and others. Also, as part of his contract, the contractor agrees to repair defects in materials and workmanship usually for a period of one year.

And so construction ends. The workmen leave. You move belongings in, and the building for the first time is entirely yours. It is now that you finally realize it was all worthwhile.

Conclusion. The creation of a building project has often been compared to the birth of a baby: joy in its conception; some discomfort in its development; some pain and effort in its delivery, and continued pride and happiness in its result. From the foregoing text, it is obvious that the process of design and construction is fairly complex, moving through many stages and involving many people in its development from concept to reality. As a result, it can be expected that some difficulties may arise.

There is no one recipe to assure success in the building process. Each project is different in its type and complexity, its cost and time aspects, and importantly the personalities and capabilities of the people involved. However, as in any other human endeavor, the key to a successful result is the development of a proper relationship based on mutual trust, an understanding of individual responsibilities and the establishment of real communications. These ingredients are of prime importance in the relationship between you and your architect. Especially is communication important. For in a building project there must be the transfer of many facts, feelings, and ideas.

It is the sincere hope of the American Institute of Architects that this booklet will further the goal of better communication and understanding between clients and their architects so that great architecture may be achieved. For the measure of our success is your happiness in your building and your architect.

Bibliography: The American Institute of Architects has published documents which may be of further interest. These are available at the Institute, 1735 New York Avenue, N.W., Washington, D.C. 20006, or from offices of the local AIA chapters in each state and major city:

Owner-Contractor Agreement Form — Stipulated Sum	A101
Short Form for Small Construction Contracts — Stipulated Sum	A107
Owner-Contractor Agreement Form — Cost plus Fee	A111
General Conditions of the Contract for Construction	A201
Contractor's Qualification Statement	A305
Recommended Guide for Bidding Procedures and Contract Awards	A501
Guide for Supplementary Conditions	A511
Instructions to Bidders	A701
Owner-Architect Agreement — Percentage of Construction Cost	B131
Owner-Architect Agreement — Multiple of Direct Personnel Expense	B231
Owner-Architect Agreement — Fee plus Expenses	B331
Duties, Responsibilities, and Limitations of Authority of Full-Time Project Representative	B352
Standard Form of Questionnaire for the Selection of Architects for Educational Facilities	B431
Statement of the Architect's Services	B551
Code for Architectural Competitions	J331

Design: Peter Bradford

Printed in USA Aug 73 25M